

## **PCT**

### **NOTIFICATION OF ELECTION**

(PCT Rule 61.2)

### From the INTERNATIONAL BUREAU

To:

Commissioner
US Department of Commerce
United States Patent and Trademark
Office, PCT
2011 South Clark Place Room
CP2/5C24
Arlington, VA 22202

**ETATS-UNIS D'AMERIQUE** Date of mailing (day/month/year) in its capacity as elected Office 15 February 2001 (15.02.01) International application No. Applicant's or agent's file reference PCT/IB99/01213 B0188 International filing date (day/month/year) Priority date (day/month/year) 04 June 1999 (04.06.99) **Applicant** DELPUCH, Alain 1. The designated Office is hereby notified of its election made: in the demand filed with the International Preliminary Examining Authority on: 03 January 2001 (03.01.01) in a notice effecting later election filed with the International Bureau on: 2. The election was not made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under, Rule 32.2(b).

The International Bureau of WIFO 34, chemin des Colombettes 1211 Geneva 20, Switzerland

Authorized officer

Pascal Piriou

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# **PCT**

## NOTIFICATION OF THE RECORDING OF A CHANGE

(PCT Rule 92bis.1 and Administrative Instructions, Section 422)

Date of mailing (day/month/year)

From the INTERNATIONAL BUREAU
FREEMAN, Jacquelin, C. W.P. Thomson Celcon House 289-293 High Holborn London WC1 V 7HU ROYAUME-UNI
IMPORTANT NOTIFICATION
International filing date (day/month/year) 04 June 1999 (04.06.99)
the agent the common representative

24 January 2001 (24.01.01)	
Applicant's or agent's file reference B0188	IMPORTANT NOTIFICATION
International application No. PCT/IB99/01213	International filing date (day/month/year) 04 June 1999 (04.06.99)
The following indications appeared on record concerning:     the applicant	the agent the common representative
Name and Address	State of Nationality State of Residence
BENECH, Frédéric 69, avenue Victor Hugo F-75783 Paris Cedex 16 France	Telephone No. 0144 1736 60
	Facsimile No. 0140 6791 40
	Teleprinter No.
	Totophiles 116.
2. The International Bureau hereby notifies the applicant that the X the person the name the add Name and Address  FREEMAN, Jacquelin, C. W.P. Thompson & Co. Celcon House 289-293 High Holborn London WC1 V 7HU United Kingdom  3. Further observations, if necessary:	
a. Further costs variously in necessary.	
4. A copy of this notification has been sent to:	
X the receiving Office	X the designated Offices concerned
the International Searching Authority	the elected Offices concerned
the International Preliminary Examining Authority	other:
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The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland

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# POST COOPERATION TREAT

# **PCT**

# NOTIFICATION OF THE RECORDING OF A CHANGE

From the INTERNATIONAL BUREAU	
To:	
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(PCT Rule 92bis.1 and Administrative Instructions, Section 422)	289-293 High Holborn London WC1 V 7HU ROYAUME-UNI			
Date of mailing (day/month/year) 11 January 2001 (11.01.01)				
Applicant's or agent's file reference B0188	IMPORTANT NOTIFICATION			
International application No. PCT/IB99/01213	International filing date (day/month/year) 04 June 1999 (04.06.99)			
The following indications appeared on record concerning:     the applicant	the agent the common representative			
Name and Address BENECH, Frédéric	State of Nationality State of Residence			
69, avenue Victor Hugo F-75783 Paris Cedex 16 France	Telephone No. 0144 1736 60			
	Facsimite No. 0140 6791 40			
	Teleprinter No.			
The International Bureau hereby notifies the applicant that the X the person the name the add				
Name and Address FREEMAN, Jacquelin, C.	State of Nationality State of Residence			
W.P. Thomson Celcon House 289-293 High Holborn London WC1 V 7HU	Telephone No. 44 20 7242 3524			
London WČ1 V 7HU United Kingdom	Facsimile No. 44 20 7504 6607			
	Teleprinter No.			
3. Further observations, if necessary:				
4. A copy of this notification has been sent to:				
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the International Searching Authority the International Preliminary Examining Authority	the elected Offices concerned other:			
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The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20. Switzerland	R. Raissi			

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TENT APPLICATION

69/980271

JC03 Rec'd PCT/PTC 3 0 Nov 2001

# PCT

(ALL CONTRACTING STATES)

# "PIN CODE"

Title :

"FLEXIBLE INTERFACE FOR SECURE INPUT OF

PIN CODE"

Application no:

PCT/IB99/01213

Application date:

04/06/1999 (June 4, 1999)

Owner:

OPEN TV, INC

Inventor:

**DELPUCH Alain** 

## PCT

## **ACKNOWLEDGEMENT OF RECEIPT OF** DOCUMENTS FILED WITH THE INTERNATIONAL BUREAU AS RECEIVING OFFICE

Ta:

BENECH, Frédéric Attorney at Law 69, avenue Victor-Hugo F-75763 Peris Cedex 16 FRANCE

Date of mailing (day/month/year)	28 June 1999 (28,06,99)	Facsimile No.: +33 1 40 67 91 40
Applicant's or agent	s filo reference	
	B0188	IMPORTANT COMMUNICATION
Imamational application No.		Date of receipt (day/month/year)
	PCT/IB99/01213	04 June 1999 (04.06.99)
Applicant	OPEN TV, INC.	
Tide of the invention	FLEXIBLE INTERFACE FOR SE	ECURE INPUT OF PIN CODE
1. The Internationa	Byreau has received the documentale	lements listed below on: 25 June 1999 (25.08.99)

	X)	RO/FR (Rule 19.4(a)(ii)) PCT Request	(4 pages)	
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Name and mailing address of the receiving Office

International Bureau of WIFO PCT Receiving Office Section 34, chemin des Colombettes, 1211 Geneva 20, Switzerland facsimile No. (41-22) 818 05 10 (Groups 3 and 4)

Authorized officer

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# PLEXIBLE INTERFACE FOR SECURE INPUT OF PIN CODE

The invention is related to interfaces between man and machine such as computer, telephone or television devices, which need a Personal Identification Number (PIN) to authenticate the user running an application.

By running an application, one should understand to continue or to have access to an application or to specific resources of an application.

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The invention is more particularly but not exclusively related to a system and a method used in an interactive information system such as an entertainment system.

15 Requirements for security in interactive entertainment systems are contradictory.

This is because, in order to run an application, an authentication of the user/viewer is needed while using the specific look and feel of the application.

However, it is also preferred that the PIN code should not be given to the application for security purpose.

In fact, two types of solutions are presently known for authentication. Both present drawbacks, as they are only capable of fulfilling part of the above requirements.

Either the application presents its own user interface for PIN entry, then queries the underlying system to check if the given PIN is correct.

This solution does not hide the PIN code from the application.

or the application requests the underlying system to authenticate the viewer. For this the underlying system, using its own look and feel, prompts the viewer for its PIN, verifies its validity and then returns the information that the viewer is authorised or not to the application.

This solution is safe, but does not allow integration of the PIN entry with the application look and feel.

In other words and referring to figure 1, it is shown a system which presents a good look and feel, but which is not safe, as the PIN code is known by the application.

More precisely, the application 1 has total tota

The viewer provides his PIN code through input means 2 in digital data to the application via an input device, for instance transmitted as infrared signals 3 to the device on which runs the application which displays in 4 the look and feel for the PIN entry field.

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Such application, which is now aware of the PIN code, transmits it in 5 to security manager means 6 which, after checking, confirms in 7 authorisation from the system 8.

The PIN code (Input means 2) is therefore provided outside of the system 8, which is unsecured, and may allows third parties to have access to the PIN code.

Figure 2 displays the other way of functioning of a known system of the prior art.

Here, the application 1 has no control over the look and feel, contrarily to the precedent case.

The application 1 requests in 9 the system  $\theta$  to identify the user.

The security manager means 6 uses the input means 2 (PIN Code), provided in 3 and the display screen to create in 4 a display of the PIN entry field.

When the security manager means 6 has checked the PIN code, it gives authorisation (7) to display or to access to resource to the application 1.

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On a security point of view this system is good as, at no point, the system 8 gives out the PIN code to the application.

However, the look and feel is here totally under system control, without any consideration for the current application look and feel.

It is therefore a main object of the present invention to provide an improved system and method for authorising a secure way of authentication for an access to an application through a PIN code while using the look and feel of said application during the PIN code interrogation.

It is another object of the invention to provide an improved system and method wherein the safety needed for PIN code entry, is combined with perfect integration of the prompt with the service.

It is another objet of the invention to provide a simple and cost saving flexible interface for secure input of a PIN code.

30 The problems outlined above are in large part solved by a system for authenticating a PIN code of a

user in an interactive information system, in order to run an application which comprises:

- input means for PIN code entry,
- security manager means for comparing the PIN code of the user, upon a request for user authentication from the application, with a registered PIN code, and giving authorisation to run said application if said PIN code of the user matches the registered PIN code,
- and display means for displaying any graphics including a PIN entry field, characterised in that

the request for user authentication being provided on the display means via the PIN entry field with the look and feel of said application, the system further comprises emitting means for entering crypted digits in said PIN entry field upon entering the PIN code of the user in the security manager means through said input means,

and the security manager means are arranged to give authorisation to run the application after full entry of said crypted digits and if the PIN code of the user is identical to the registered PIN code.

With such system the PIN code remains hidden from the environment, the user having only the impression to enter physically his PIN code within the PIN entry field of the application. In fact, it remains in the security manager means, which is within the system.

In a preferred embodiment the application is a television program.

The invention also provides a method for authenticating a PIN code of a user in an interactive information system, in order to run an application, wherein said information system emits a request for authenticating a user,

said user enters a PIN code through input means, said PIN code of the user is compared with a registered PIN code, within security manager means, and authorisation is provided to run said application if the PIN code of the user matches with the registered PIN code,

characterised in that

- the request for authenticating being provided with a PIN entry field having the look and feel of the application,
- crypted digits are entered in said PIN entry field, upon entering the PIN code by the user in the security manager means,

and authorisation to display the application is only provided after full entry of said crypted digits, and if the PIN code signal of the user is identical to the registered PIN code as checked by the security manager means.

The invention will be better understood from reading the following description of a particular embodiment given by way of non limiting example, and which refers, additionally to the above mentioned figures showing the prior art, to the accompanying drawings in which:

- Figures 1 and 2, already mentioned, are schematic drawings figuring the architecture of the PIN code interface of the prior art.
- Figure 3 is a schematic drawing showing the architecture of the system according to the present invention.
  - Figure 4 is a schematic drawing showing an interactive television system for implementing the invention.
- application according to the embodiment of the invention more particularly described here.
  - Figure 6 is a flowchart implemented by the security manager means according to the embodiment of the invention more particularly described here.

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Figure 3 shows a system 10 arranged to authenticate the user before running an application 11, according to the invention.

The application 11 initiates a PIN entry request

12 to authenticate the user request and

simultaneously asks the security manager means 13 to

handle key input 14 to be introduced through Input

means 15, for instance through a key pad.

The security manager means 13 comprises a small computer system including a central processing unit (CPU), memory and local storage. It is connected to input/output ports.

It is programmed in order to provide the different steps according to the method of the invention.

30 The application having total control over the graphics displayed and their look and feel, the look

and feel 16 for PIN entry is provided on display means 17 according to the application.

The display means can be a TV screen, an LCD screen of a remote portable telephone, etc.

As the security manager means 13 is asked to enter the PIN entry mode, it grabs key inputs 14, analyses these inputs for user authentication and relays in 18 the key presses to the application.

The security manager means does not relay the key values, which therefore remains within the system, but only relays the fact that a key has been pressed, letting for instance the application display an X for each key pressed, in the PIN entry field.

This way the application does not learn about the IS PIN, but can give user feedback 19 to the display means 17.

When the security manager means 13 recognises the PIN, it informs in 20 the application that the user/viewer has been authenticated.

The application can then run, be displayed and/or operate.

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Figure 4 shows schematically an interactive television system 21 including a system S according to the embodiment of the invention more particularly described here.

A broadcaster 22 transmit through a satellite 23 the signal corresponding to the look and feel of an application request (arrows 24), for instance a Pay TV program.

The signal is provided to a digital interactive decoder 25, currently packaged in a set-top connected to a television 26.

It delivers true interactive television using the broadcast-oriented infrastructure currently predominant in the television industry.

The decoder 25 comprises in a manner known per se, a demultiplexer 27 and an application programming interface 28, stored in a local memory (RAM, EPROM FLASH memory, ...), such as the one proposed by the applicant OPEN TV, and which provides a library of functions which can display graphics on the television screen, control audio/video services, accept user input and communicate with the outside world.

The decoder 25 also comprises a CPU 29, Audio/Video decoding means 30, connected through audio video output 31 to the television set 26, storage means 32 for storing an operating system for the CPU 29, such as the one provided by OPEN TV.

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The CPU 29 further includes part of the security manager means 33 as described in the invention.

The decoder 25 also comprises Input means 34 such as infrared sensors arranged to receive infrared signals 35 emitted by a remote control apparatus 36 having a key pad 37, and display function means 38 controlled by the CPU.

The decoder 25 also comprises output means having a modem and/or a multiplexer 39 for providing back return signals 40 on a return channel to the broadcaster 22 and/or a server.

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The broadcast system may be, of course based on satellite or cable or some other medium.

Figure 5 shows a block diagram according to an embodiment of the invention to be included in an application to authenticate the users to continue or to have access to specific resources which needs authentication by a PIN code.

The application first uses some display function (block 41) to present a PIN entry field to the viewer.

It then asks the security manager means to enter the PIN entry mode and check in 43 if keys are pressed.

As keys are pressed, it gives (block 44) feedback using the display function.

If the user is not authenticated (step 45), it comes back (loop 46) to check 43.

If the user is authenticated (in 47), there is an OK from the security manager means and the application can go on (step 48).

An example of a block diagram of the security manager program is provided on figure 6 and is performed entirely (and secretly) within the System 5.

25 At the application request in 49, the security manager means enters a PIN entry mode (step 50).

The PIN repertory is then initialised to empty in 51 and the system wait for a key to be pressed (check 52).

If the key is an « ending » key (for instance OK or enter), (check 53) there is a release of the key input grabbing (step 54).

If not there is a loop 55 for more key.

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After release of the key input grabbing, the security manager means checks in 56 the entered PIN against the user's PIN.

It then either returns success (step 57), or failure (step 58) to application (step 45 of the application), before exiting PIN entry mode in 59.

It will now be described the functioning of the system while referring to figure 4.

At the broadcast site, pay TV programs of a Specific Provider are stored.

15 The pay TV programs are encoded into a digital bitstream which is compressed and multiplexed with the signal of the PIN code field of the Specific Provider, including its logo and a menu to allow the viewer to have access to other movies of the provider, to form a single bitstream.

This single bitstream is then broadcasted to all subscribers. At each customer's site, the bitstream is received by the decoder 25 where the audio and video are decompressed and the PIN code field is sent to the customer's television set 26.

The request for the PIN code of the user is therefore prompted to the viewer.

The viewer then, for instance through a remote control apparatus, can enter his PIN code by pressing keys.

At each pressing, a cross appears in the PIN entry field on the TV Screen.

Meanwhile the Security manager means 33 compares the PIN code with a preregistered user's PIN code entered before in the decoder for instance via a modem.

If the PIN codes matches, signals are sent to the application decoding process 30, and such decoding process is then authorised for displaying the application on the TV set.

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Additional advantages and modifications will readily occur to those skilled in the art. Therefore the present invention in its broader aspects is not limited to the specific details, representative devices and illustrated examples shown and described herein.

For instance, it also includes application to PIN code entry for obtaining specific services through mobile phone, for instance via GSM, or other specific services via Television and/or Internet.

#### 44

### **CLAIMS**

- A system (10, S) for authenticating a PIN code of a user in an interactive information system in s order to run an application (11), wherein it comprises
  - input means (15, 34, 35, 36, 37) for PIN code entry,
- security manager means (13, 33) for comparing
  to the PIN code of the user upon a request for user
  authentication from the application, with a
  registered PIN code, and giving authorisation to run
  said application if the PIN code of the user matches
  with the registered PIN code, and
- display means (17, 29, 38) for displaying any graphics including a PIN entry field, characterised in that
  - the request for user authentication being provided on the display means via the Pin entry field with the look and feel of said application, the system further comprises emitting means (29, 38) for entering crypted digits in said PIN entry field upon entering the PIN code of the user in the security manager means through said input means,

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- and the security manager means (13, 33) are arranged to give authorisation to run the application after full entry of eaid crypted digits and if the PIN code of the user is identical to the registered PIN code.
- 2. A system according to claim 1 characterised in that the application is a television program.

- 3. A system according to claim 1, characterised in that the application is a service provided on mobile Telephone.
- 4. A method for authenticating a PIN code of a user in an interactive information system, in order to run an application,

wherein said information system emits a request for authenticating a user (41),

said user enters a PIN code (43) through input means,
said PIN code of the user is compared (45) with a
registered PIN code within security manager means,
and authorisation is provided to run said application
if the PIN code of the user matches with the
registered PIN code,

15 characterised in that

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- the request for authenticating being provided with a PIN entry field having the look and feel of the application,
- crypted digits are entered (44) in said PIN entry field, upon entering the PIN code by the user in the security manager means,

and authorisation to display the application is only provided (47) after full entry of said crypted digits, and if the PIN code of the user is identical; to the registered PIN code as checked by the security manager means.

5. A method according to claim 4, characterised in that, for presenting the request for authentication, the application undertakes the following steps:

- presenting a PIN entry field to the user (41),
- asking the security manager means to enter a PIN Entry Mode (42),
- the input means comprising keys, checking if keys are pressed by the user (43),
  - while keys are pressed, giving feedback in entering said crypted digits in said PIN entry field (44), and,
- if the user is authenticated (45) by said security
  manager means, giving said authorisation (47) to
  display (48) the application.
  - 6. A method according to any of claims 4 and 5, characterised in that, for providing the authorisation to display the application the security manager means undertakes the following steps:
  - at the request of the application entering a PIN entry mode (50),

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- initialising to empty a PIN repertory (51) and, the input means comprising keys, waiting for a key to be pressed by the user (52),
- upon occurrence of pressing an « ending key \*, checking if a release occurs (53), checking the entered PIN against the user's PIN (56), and if success authorising the application to run.
- 7. A method according to any of claims 4 to  $6\lambda$  characterised in that the application is a Television program.
  - 8. A method according to any of claims 4 to 6, characterised in that the application is a service provided on a mobile telephone.

# ABSTRACT

The present invention concerns a system (10) and a process for authenticating a PIN code of a user in an interactive information system in order to run an application. It comprises input means (15) for PIN code entry, security manager means (13) for comparing the PIN code of the user upon a request for user authentication from the application, registered PIN code, and giving authorisation to run. said application if the PIN code of the user matches with the registered PIN code, and display means (17)" for displaying any graphics including a PIN entry field. The request for user authentication is . provided on the display means via the Pin entry field with the look and feel of said application. The system further comprises emitting means for entering crypted digits, the security manager means (13) being arranged to give authorieation to run the application after full entry of said crypted digits and if the PIN code of the user is identical to the registered PIN code.

Figure 3

# FIGURE OF ABSTRACT

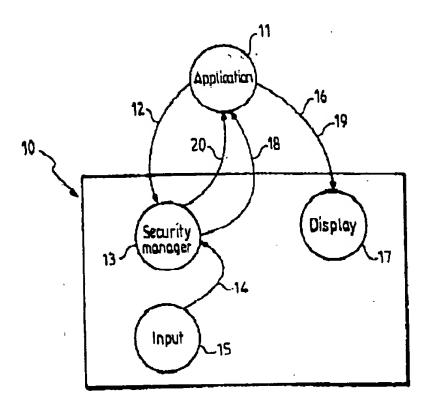


FIG. 3

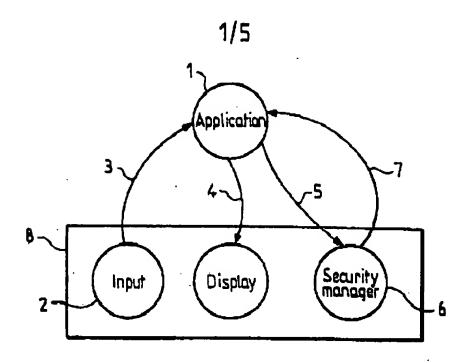


FIG.1 PRIOR ART

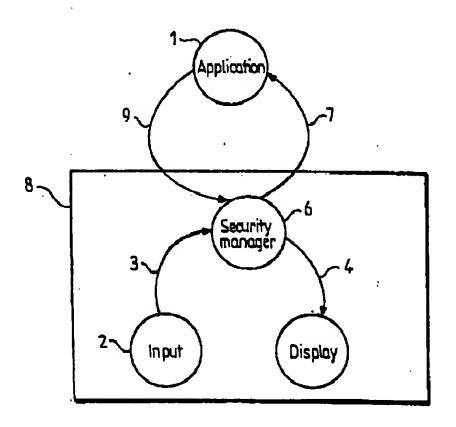


FIG.2 PRIOR ART

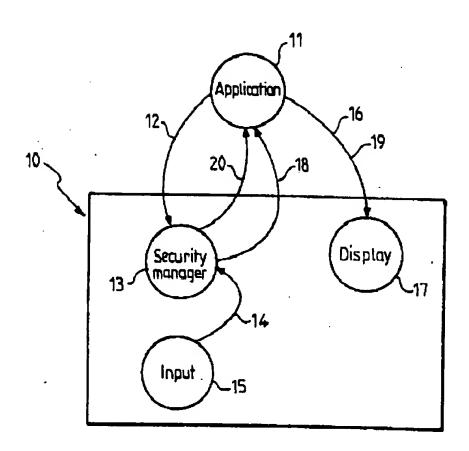
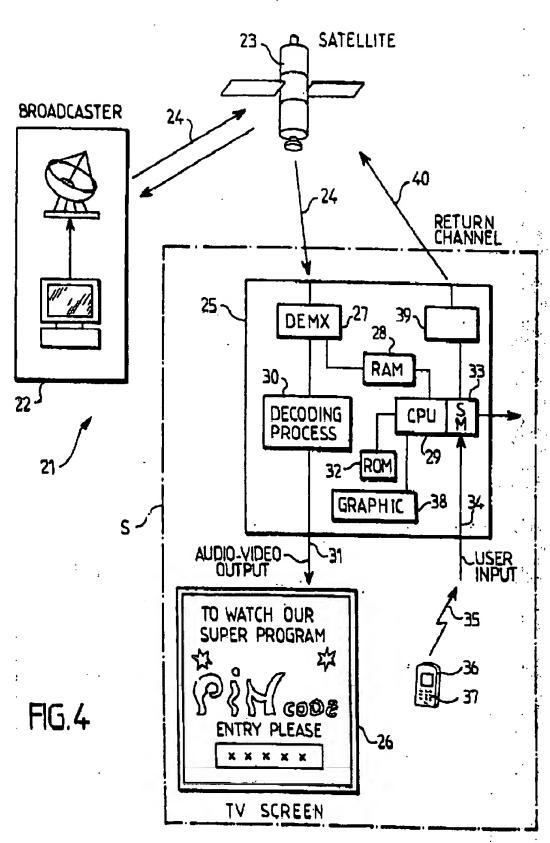


FIG. 3



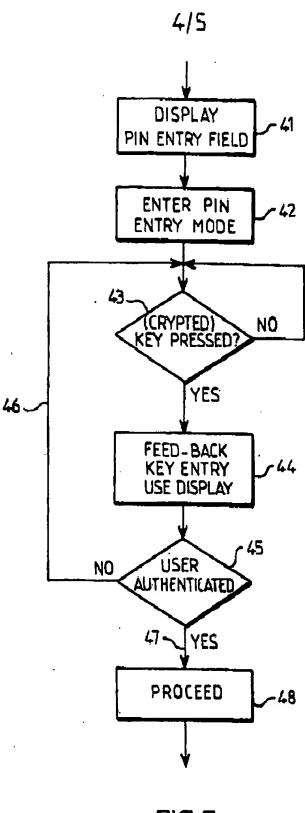
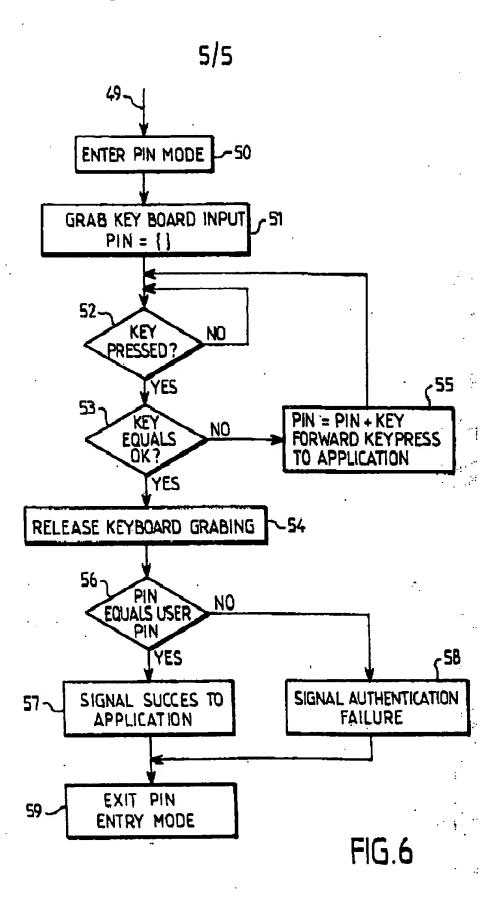


FIG.5



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REQUEST	International Filing Data		
The undersigned requests that the present international application be processed according to the Patent Competation Treaty.	Name of receiving Office	and "PCT International Applica	
	(if defined) (12 characters	WATCHWAY DO LAG	
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Attorney at Law 69, avenue victor-Rugo F-75783 PARIS CEDEX 16

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# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's	or an	ent's file reference	<del></del>	<u> </u>	<del></del>			
			FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)				
Internation	al app	lication No.	International filing date (day/month	vyear)	Priority date (da	ny/month/year)		
PCT/IB9	9/01:	213	04/06/1999	04/06/1999				
Internation H04N7/1		ent Classification (IPC) or nat	tional classification and IPC					
OPEN TV, INC. et al.								
1. This i	intern s tran	ational preliminary exami smitted to the applicant a	nation report has been prepared coording to Article 36.	by this Inter	national Prelim	inary Examining Authority		
2. This	REPO	ORT consists of a total of	10 sheets, including this cover :	sheet.				
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ı	$\boxtimes$	Basis of the report						
H		Priority						
111	$\boxtimes$	Non-establishment of op-	pinion with regard to novelty, inv	entive step a	nd industrial ap	plicability		
IV		Lack of unity of invention	n					
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VI		Certain documents cited	d d					
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# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IB99/01213

I.	Basis	of the	report
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1	the an	fith regard to the <b>elements</b> of the international application (Replacement sheets which have been furnished to be receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)): escription, pages:				
	1-1	11	as originally filed			
	Cla	Claims, No.:				
	1-8	3	as originally filed			
	Dra	Drawings, sheets:				
	1-5	;	as originally filed			
2.	. With regard to the <b>language</b> , all the elements marked above were available or furnished to this Authority in t language in which the international application was filed, unless otherwise indicated under this item.					
These elements were available or furnished to this Authority in the following language: , which is:			vailable or furnished to this Authority in the following language: , which is:			
		the language of a t	ranslation furnished for the purposes of the international search (under Rule 23.1(b)).			
	ranslation furnished for the purposes of international preliminary examination (under Rule					
3.	With	With regard to any <b>nucleotide and/or amino acid sequence</b> disclosed in the international application, the nternational preliminary examination was carried out on the basis of the sequence listing:				
		contained in the int	ernational application in written form.			
	$\Box$ filed together with the international application in computer readable form.		he international application in computer readable form.			
		I furnished subsequently to this Authority in written form.				
		I furnished subsequently to this Authority in computer readable form.				
		The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.				
		The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.				
4.	The	amendments have	resulted in the cancellation of:			
		the description,	pages:			
		the claims,	Nos.:			

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IB99/01213

		the drawings,	sheets:	
5	. 🗖	This report has been established as if (some of) the amendments had not been made, since they have considered to go beyond the disclosure as filed (Rule 70.2(c)):		
		(Any replacement sh report.)	neet containing such amendments must be referred to under item 1 and annexed to this	
6.	. Ad	ditional observations, i	f necessary:	
111	. No	n-establishment of o	pinion with regard to novelty, inventive step and industrial applicability	
1. The		e questions whether the claimed invention appears to be novel, to involve an inventive step (to be non- vious), or to be industrially applicable have not been examined in respect of:		
		the entire internation	al application.	
	×	claims Nos. 1-8.		
be	ecau	se:		
		the said international not require an interna	application, or the said claims Nos. relate to the following subject matter which does ational preliminary examination (specify):	
	×	the description, claim unclear that no mean see separate sheet	s or drawings (indicate particular elements below) or said claims Nos. 1-8 are so ingful opinion could be formed (specify):	
		the claims, or said cla	nims Nos. are so inadequately supported by the description that no meaningful opinion	
		no international searc	ch report has been established for the said claims Nos	
<ol> <li>A meaningful international preliminary examination cannot be carried out due to the failure of the ne and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Adm Instructions:</li> </ol>		preliminary examination cannot be carried out due to the failure of the nucleotide ce listing to comply with the standard provided for in Annex C of the Administrative		
		the written form has n	ot been furnished or does not comply with the standard.	
			e form has not been furnished or does not comply with the standard.	
VII	. Ce	rtain defects in the in	ternational application	
			orm or contents of the international application have been noted:	

see separate sheet



International application No. PCT/IB99/01213

# VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made: see separate sheet

### 1. General

The present application does not satisfy the criteria set forth in Article 6 PCT. Details of the objections are set out below.

## 2. Concerning Section VIII - Art. 6 PCT:

### 2.1. Claim 1

The wording of claim 1 is unclear (Art. 6 PCT contravened), for at least the following reasons:

- Page 12 lines 15-16: It is not clear by which means the display means 17 is controlled (according to Fig. 3, it is controlled by the application 11).
- Page 12 lines 21-23: The feature "emitting means (29, 38) for entering crypted digits ..." alludes to second possibility for the user to enter his PIN by way of encrypted digits thereof. This does not match with the description (p.7 lines 9-16, Figs.3, 4) according to which an encrypted digit is merely displayed under control of the application when the user presses a key for entering a digit of his PIN. The presently used term "entering" in conjunction with "emitting" is considered to be misleading in this context.
- Page 12 lines 25-28: This passage appears to be a mere duplicate of the substance provided by lines 9 to 14.

One feature identified therein is that "the security manager means are arranged to give authorization to run the application after full entry of said crypted digits". In this context, it is not clear in which way the security manager means are informed about the crypted digits being fully displayed under control of the application.

The description appears to be silent about a connection from the display of crypted digits to the security manager means, so that support of the feature as presently claimed by

# INTERNATIONAL PRELIMINARY

International application No. PCT/IB99/01213

**EXAMINATION REPORT - SEPARATE SHEET** 

a described embodiment cannot at present be acknowledged.

It is further to be noted that it is an inherent feature resulting from lines 12-14 that the user has to input all the digits of a PIN before a match with the registered PIN code can be detected by the security manager means.

It is further considered that the last paragraph of claim 1 is superfluous and as such obscures the claim's scope of protection.

These objections and other objections under Art. 6 PCT could be overcome by drafting claim 1 in the following manner (basis of suggested amendments: Figs. 3-5 and related text passages, such as p.7 lines 9-16, p.11 lines 1-2):

"1.

A system (10, S) for authenticating ..., the system comprising:

- (a) input means (15; 34-37) for PIN code entry,
- (b) security manager means (13, 33) for comparing the PIN code of the user inputted via said input means upon a request (49) for user authentication, supplied from the application, with a registered PIN code and for giving an authorisation signal (20) to said application to run said application if the PIN code of the user matches with the registered PIN code,
- (c) display means (17, 29, 38) for displaying any graphics including a PIN entry field,

the system being characterised by further comprising

- (d) means for providing said request (16, 41) for user authentication from said application to said display means, wherein said request is displayed with the PIN entry field of the display means and is displayed with the look and feel of said application,
- (e) means for supplying (18) information from said security manager means to said application about PIN code entering key-pressing operations by said user, wherein entered PIN code is not supplied to said application;
- (f) and display control means (29, 38) coupled to said application to effect display of crypted digits in said PIN entry

# INTERNATIONAL PRELIMINARY International application No. PCT/IB99/01213 EXAMINATION REPORT - SEPARATE SHEET

field corresponding to said information about PIN code entering operations supplied to said application.

It is to be noted that the feature "with the look and feel of said application" is considered an artistic feature rather than a technical feature. Thus the feature does not lend itself to establishing novelty or inventive step given the provisions of Art. 52(1)b).

Moreover, in the suggestion set out above, feature (e) is provided as a feature which is considered essential to achieving the objectives of the invention set out in the introductory portion of the description (avoiding the transmission of a pin code to the application while still providing a pin entry feedback to the user in the framework of the look and feel of the application). The present claim contravenes Art. 6 PCT because it lacks this essential feature.

### 2.2. Claim 4

Claim 4 also suffers from at least some of the deficiencies identified above with respect to claim 1 (c.f. paragraph 2.1 above).

These and other deficiencies will become apparent from the following suggestion for an amended claim 4, which suggestion is streamlined with the suggestion for claim 1, and in which the deficiencies with respect to Art. 6 PCT are considered to be overcome:

"4

A method for authenticating ..., wherein

- (a) said <u>application</u> provides <u>a display of</u> a request (16) for <u>user</u> authentication <u>upon which request the</u> user enters (43) a PIN code through input means;
- (b) the entered PIN code is compared (45; 56) with a registered PIN code within security manager means and if the PIN

code of the user matches with the registered PIN code the security manager means provide to the information system an authorisation (20; 47) to run said application;

- (c) said request for user authentication is displayed by display means, along with a PIN entry field,
- the method being characterized in that
- (d) the request (16) for user authentication is provided from said application to the display means, and is displayed with the look and feel (16) of said application;
- (e) information is supplied (18; 55) from the security manager means to the application about PIN code entering key-pressing operations by said user, wherein entered PIN code is not supplied to said application;
- (f) and the application causes crypted digits to be displayed in said PIN entry field corresponding to said information about PIN code entering key-pressing operations supplied to said application.

#### 2.3. Claims 2, 3, 7, 8

According to the description (eg Fig.3), the application 11 interacts with the security manager and controls display 17 in a particular manner (encrypted display of inputted PIN characters). Such interactions and operations are not compatible with normal broadcast television programs (unidirectional transmission only). To overcome this problem, claim 2 could be amended to read e.g.:

"A system ... characterised in that the application includes a television program".

Claims 3, 7 and 8 could be correspondingly amended.

#### 2.4. Claims 5, 6

In light of the suggestion in respect of claim 4 set out above, claim 5 as presently on file does not appear to provide any substantial further information. If the suggested amendments to claim 4 are adopted, claim 5 would be superfluous.

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## 3. Concerning Section V - Articles 33(2) and 33(3) PCT

The following document are cited:

D1: US-A-5 870 723; D2: US-A-5 267 149.

### 3.1.

In view of the claims's deficiencies with respect to Art. 6 PCT, it is not possible to examine the claims with respect to novelty and inventive step.

#### 3.2.

However, a preliminary opinion as to novelty and inventive step of an amended claim 1 as proposed above is provided below:

D1 discloses (col.16 lines 19-29) displaying a request to a user to enter his PIN code, enabling input means therefor, receiving PIN code key input from the user and providing input feedback to the user by displaying the PIN code in encrypted form. The entering of a PIN code as disclosed implies a subsequent action, such as enabling an application to run, when the entered PIN code is detected to be correct, e.g. by way of comparison with a registered PIN code.

Thus D1 anticipates features (a) to (c) identified in the proposal for claim 1 set out in paragraph 2.1 above.

According to D1 (abstract), the PIN code is encrypted at a user's terminal and transmitted to a host computer which provides a current application. This is different from claim 1 (feature (e) as proposed) according to which not the PIN code but merely key stroke indications are transmitted to the (host) application.

Also, D1 does not appear to provide any detail as to how precisely (from where) the display of the PIN code entry field and the display of the encrypted PIN code are controlled. Thus controlling the display from the application can be considered another detail of claim 1 (as proposed for amendment) that is

# INTERNATIONAL PRELIMINARY International application No. PCT/IB99/01213 EXAMINATION REPORT - SEPARATE SHEET

not anticipated.

Moreover, D1 is not concerned with the specific objectives (identified in paragraph 2.1 above) underlying the subject-matter of claim 1 (as disclosed in the description and as considered to be sufficiently represented now in the proposal for amending claim 1).

The relevant teachings of D2 (Figs. 3, 6 and related text passages) are similar to those of D1.

The subject-matter provided by claim 1 as proposed for amendment does not appear to be compromised by the presently available prior art.

The findings set out in hereinabove with respect to an amended claim 1 would correspondingly apply to an amended claim 4.

## 4. Concerning Section VII: Description and formal matters

- (a) Documents reflecting the prior art referred to on page 1 (lines 23-26) and described on pages 1-3 are not identified in the description (Rule 5.1(a)(ii) PCT).
- (b) Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1 and D2 is not mentioned in the description, nor are these documents identified therein.
- (d) In Fig. 6, the text of box 54 should correctly read "... GRABBING" and the text of box 57 should correctly read "... SUCCESS ...".

Mit



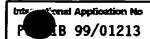
## **INTERNATIONAL SEARCH REPORT**

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference B0188	FOR FURTHER see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.		
International application No.	International filing date (day/month/year)	(Earliest) Priority Date (day/month/year)	
PCT/IB 99/01213	04/06/1999		
OPEN TV, INC. et al.			
This international Search Report has been according to Article 18. A copy is being tre	n prepared by this international Searching A ansmitted to the international Bureau.	uthority and is transmitted to the applicant	
	of a total of: 3 sheets. a copy of each prior art document cited in the	nla report.	
	international search was carried out on the b ess otherwise indicated under this item.	easis of the international application in the	
the International search w Authority (Rule 23.1(b)).	as carried out on the basis of a translation of	f the international application furnished to this	
b. With regard to any nucleotide an was carried out on the basis of the contained in the internation filed together with the internation furnished subsequently to the statement that the subsequent that the	d/or amino acid sequence disclosed in the e sequence listing: nal application in written form. mational application in computer readable for this Authority in written form. this Authority in computer readble form. sequently furnished written sequence listing a filed has been furnished.		
the statement that the Info	rmation recorded in computer readable form	n is identical to the written sequence listing has been	
Contain claims were four     Unity of invention is tack	nd unsearchable (See Box I). king (see Box II).		
4. With regard to the tittle,  The text is approved as sure the text has been established.	brnitted by the applicant. hed by this Authority to read as follows:		
5. With regard to the abstract,  The text is approved as sufthe text has been establish within one month from the	• • • •	ority as it appears in Box III. The applicant may, eport, submit comments to this Authority.	
6. The figure of the drawings to be publicated by the applicated by the applicated by the applicated because the figure better	cant.	None of the figures.	

## INTERNATIONAL SEARCH REPORT





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TRA 7 IIA	4117/46	G07F7/10	
IPL / HII	4N//IN	E07F7710	
<b>110</b> / 110	711// 17	40/1//10	

According to international Patent Classification (IPC) or to both national classification and IPC

#### **B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04N G07F H04L H04Q G06F G07C

Documentation searched other than minimum documentation to the extent that such documents are included. In the fields searched

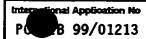
Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT				
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	<b>-/-</b> -			

Further documents are listed in the continuation of box C.	Patent family members are listed in annex.			
Special categories of cited documents:  "A" document defining the general state of the art which is not considered to be of particular relevance  "E" earlier document but published on or after the international filing date  "L" document which may throw doubts on priority claim(s) or which is ofted to establish the publication date of another citation or other special reason (as specified)  "O" document referring to an oral disclosure, use, exhibition or other means  "P" document published prior to the international filing date but later than the priority date claimed	"I" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention.  "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone.  "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.  "&" document member of the same patent family			
Date of the actual completion of the international search.	Date of mailing of the international search report			
8 February 2000	15/02/2000			
Name and mailing address of the ISA	Authorized officer			
Europeen Patent Office, P.B. 5818 Patentiaan 2 NL – 2290 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo ni, Fac (+31–70) 340–3016	Lindholm, A-M			

## INTERNATIONAL SEARCH REPORT





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JS 4947429	Α	07-08-1990	NONE		

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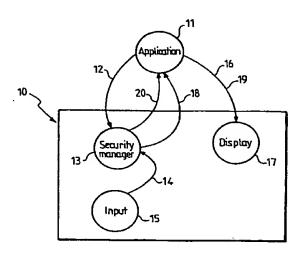
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

#### (54) Title: FLEXIBLE INTERFACE FOR SECURE INPUT OF PIN CODE



(57) Abstract: The present invention concerns a system (10) and a process for authenticating a PIN code of a user in an interactive information system in order to run an application. It comprises input means (15) for PIN code entry, security manager means (13) for comparing the PIN code of the user upon a request for user authentication from the application, with a registered PIN code, and giving authorisation to run said application if the PIN code of the user matches with the registered PIN code, and display means (17) for displaying any graphics including a PIN entry field. The request for user authentication is provided on the display means via the PIN entry field with the look and feel of said application. The system further comprises emitting means for entering crypted digits, the security manager means (13) being arranged to give authorisation to run the application after full entry of said crypted digits and if the PIN code of the user is identical to the registered PIN code.

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## FLEXIBLE INTERFACE FOR SECURE INPUT OF PIN CODE

The invention is related to interfaces between man and machine such as computer, telephone or television devices, which need a Personal Identification Number (PIN) to authenticate the user running an application.

By running an application, one should understand to continue or to have access to an application or to specific resources of an application.

The invention is more particularly but not exclusively related to a system and a method used in an interactive information system such as an entertainment system.

Requirements for security in interactive entertainment systems are contradictory.

This is because, in order to run an application, an authentication of the user/viewer is needed while using the specific look and feel of the application.

20 However, it is also preferred that the PIN code should not be given to the application for security purpose.

In fact, two types of solutions are presently known for authentication. Both present drawbacks, as they are only capable of fulfilling part of the above requirements.

Either the application presents its own user interface for PIN entry, then queries the underlying system to check if the given PIN is correct.

This solution does not hide the PIN code from the application.

Or the application requests the underlying system to authenticate the viewer. For this the underlying system, using its own look and feel, prompts the viewer for its PIN, verifies its validity and then returns the information that the viewer is authorised or not to the application.

This solution is safe, but does not allow integration of the PIN entry with the application look and feel.

In other words and referring to figure 1, it is shown a system which presents a good look and feel, but which is not safe, as the PIN code is known by the application.

More precisely, the application 1 has total control of the look and feel.

The viewer provides his PIN code through input means 2 in digital data to the application via an input device, for instance transmitted as infrared signals 3 to the device on which runs the application which displays in 4 the look and feel for the PIN entry field.

Such application, which is now aware of the PIN code, transmits it in 5 to security manager means 6 which, after checking, confirms in 7 authorisation from the system 8.

The PIN code (Input means 2) is therefore provided outside of the system 8, which is unsecured, and may allows third parties to have access to the PIN code.

Figure 2 displays the other way of functioning of a known system of the prior art.

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Here, the application 1 has no control over the look and feel, contrarily to the precedent case.

The application 1 requests in 9 the system 8 to identify the user.

The security manager means 6 uses the input means 2 (PIN Code), provided in 3 and the display screen to create in 4 a display of the PIN entry field.

When the security manager means 6 has checked the PIN code, it gives authorisation (7) to display or to access to resource to the application 1.

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On a security point of view this system is good as, at no point, the system 8 gives out the PIN code to the application.

However, the look and feel is here totally under system control, without any consideration for the current application look and feel.

It is therefore a main object of the present invention to provide an improved system and method for authorising a secure way of authentication for an access to an application through a PIN code while using the look and feel of said application during the PIN code interrogation.

It is another object of the invention to provide an improved system and method wherein the safety needed for PIN code entry, is combined with perfect integration of the prompt with the service.

It is another objet of the invention to provide a simple and cost saving flexible interface for secure input of a PIN code.

The problems outlined above are in large part solved by a system for authenticating a PIN code of a

user in an interactive information system, in order to run an application which comprises :

- · input means for PIN code entry,
- security manager means for comparing the PIN code of the user, upon a request for user authentication from the application, with a registered PIN code, and giving authorisation to run said application if said PIN code of the user matches the registered PIN code,
- and display means for displaying any graphics including a PIN entry field, characterised in that
- the request for user authentication being provided on the display means via the PIN entry field with the look and feel of said application, the system further comprises emitting means for entering crypted digits in said PIN entry field upon entering the PIN code of the user in the security manager means through said input means,
- and the security manager means are arranged to give authorisation to run the application after full entry of said crypted digits and if the PIN code of the user is identical to the registered PIN code.

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With such system the PIN code remains hidden from the environment, the user having only the impression to enter physically his PIN code within the PIN entry field of the application. In fact, it remains in the security manager means, which is within the system.

In a preferred embodiment the application is a television program.

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The invention also provides a method for authenticating a PIN code of a user in an interactive information system, in order to run an application, wherein said information system emits a request for authenticating a user,

said user enters a PIN code through input means, said PIN code of the user is compared with a registered PIN code, within security manager means, and authorisation is provided to run said application if the PIN code of the user matches with the registered PIN code, characterised in that

- the request for authenticating being provided with a PIN entry field having the look and feel of the application,
- crypted digits are entered in said PIN entry field, upon entering the PIN code by the user in the security manager means,

and authorisation to display the application is only provided after full entry of said crypted digits, and if the PIN code signal of the user is identical to the registered PIN code as checked by the security manager means.

The invention will be better understood from reading the following description of a particular embodiment given by way of non limiting example, and which refers, additionally to the above mentioned figures showing the prior art, to the accompanying drawings in which:

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- Figures 1 and 2, already mentioned, are schematic drawings figuring the architecture of the PIN code interface of the prior art.
- Figure 3 is a schematic drawing showing the architecture of the system according to the present invention.
  - Figure 4 is a schematic drawing showing an interactive television system for implementing the invention.
- Figure 5 is a flowchart related to the application according to the embodiment of the invention more particularly described here.
  - Figure 6 is a flowchart implemented by the security manager means according to the embodiment of the invention more particularly described here.

Figure 3 shows a system 10 arranged to authenticate the user before running an application 11, according to the invention.

The application 11 initiates a PIN entry request

12 to authenticate the user request and

13 simultaneously asks the security manager means 13 to

14 handle key input 14 to be introduced through Input

15 means 15, for instance through a key pad.

The security manager means 13 comprises a small computer system including a central processing unit (CPU), memory and local storage. It is connected to input/output ports.

It is programmed in order to provide the different steps according to the method of the invention.

The application having total control over the graphics displayed and their look and feel, the look

and feel 16 for PIN entry is provided on display means 17 according to the application.

The display means can be a TV screen, an LCD screen of a remote portable telephone, etc.

As the security manager means 13 is asked to enter the PIN entry mode, it grabs key inputs 14, analyses these inputs for user authentication and relays in 18 the key presses to the application.

The security manager means does not relay the key values, which therefore remains within the system, but only relays the fact that a key has been pressed, letting for instance the application display an X for each key pressed, in the PIN entry field.

This way the application does not learn about the PIN, but can give user feedback 19 to the display means 17.

When the security manager means 13 recognises the PIN, it informs in 20 the application that the user/viewer has been authenticated.

The application can then run, be displayed and/or operate.

Figure 4 shows schematically an interactive television system 21 including a system S according to the embodiment of the invention more particularly described here.

A broadcaster 22 transmit through a satellite 23 the signal corresponding to the look and feel of an application request (arrows 24), for instance a Pay TV program.

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The signal is provided to a digital interactive decoder 25, currently packaged in a set-top connected to a television 26.

It delivers true interactive television using the broadcast-oriented infrastructure currently predominant in the television industry.

The decoder 25 comprises in a manner known per se, a demultiplexer 27 and an application programming interface 28, stored in a local memory (RAM, EPROM FLASH memory, ...), such as the one proposed by the applicant OPEN TV, and which provides a library of functions which can display graphics on the television screen, control audio/video services, accept user input and communicate with the outside world.

The decoder 25 also comprises a CPU 29, Audio/Video decoding means 30, connected through audio video output 31 to the television set 26, storage means 32 for storing an operating system for the CPU 29, such as the one provided by OPEN TV.

The CPU 29 further includes part of the security manager means 33 as described in the invention.

The decoder 25 also comprises Input means 34 such as infrared sensors arranged to receive infrared signals 35 emitted by a remote control apparatus 36 having a key pad 37, and display function means 38 controlled by the CPU.

The decoder 25 also comprises output means having a modem and/or a multiplexer 39 for providing back return signals 40 on a return channel to the broadcaster 22 and/or a server.

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The broadcast system may be, of course based on satellite or cable or some other medium.

Figure 5 shows a block diagram according to an embodiment of the invention to be included in an application to authenticate the users to continue or to have access to specific resources which needs authentication by a PIN code.

The application first uses some display function (block 41) to present a PIN entry field to the viewer.

It then asks the security manager means to enter the PIN entry mode and check in 43 if keys are pressed.

As keys are pressed, it gives (block 44) feedback using the display function.

If the user is not authenticated (step 45), it comes back (loop 46) to check 43.

If the user is authenticated (in 47), there is an OK from the security manager means and the application can go on (step 48).

An example of a block diagram of the security manager program is provided on figure 6 and is performed entirely (and secretly) within the System S.

25 At the application request in 49, the security manager means enters a PIN entry mode (step 50).

The PIN repertory is then initialised to empty in 51 and the system wait for a key to be pressed (check 52).

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If the key is an « ending » key (for instance OK or enter), (check 53) there is a release of the key input grabbing (step 54).

If not there is a loop 55 for more key.

5 After release of the key input grabbing, the security manager means checks in 56 the entered PIN against the user's PIN.

It then either returns success (step 57), or failure (step 58) to application (step 45 of the application), before exiting PIN entry mode in 59.

It will now be described the functioning of the system while referring to figure 4.

At the broadcast site, pay TV programs of a Specific Provider are stored.

15 The pay TV programs are encoded into a digital bitstream which is compressed and multiplexed with the signal of the PIN code field of the Specific Provider, including its logo and a menu to allow the viewer to have access to other movies of the provider, to form a single bitstream.

This single bitstream is then broadcasted to all subscribers. At each customer's site, the bitstream is received by the decoder 25 where the audio and video are decompressed and the PIN code field is sent to the customer's television set 26.

The request for the PIN code of the user is therefore prompted to the viewer.

The viewer then, for instance through a remote control apparatus, can enter his PIN code by pressing keys.

At each pressing, a cross appears in the PIN entry field on the TV Screen.

Meanwhile the Security manager means 33 compares the PIN code with a preregistered user's PIN code entered before in the decoder for instance via a modem.

If the PIN codes matches, signals are sent to the application decoding process 30, and such decoding process is then authorised for displaying the application on the TV set.

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Additional advantages and modifications will readily occur to those skilled in the art. Therefore the present invention in its broader aspects is not limited to the specific details, representative devices and illustrated examples shown and described herein.

For instance, it also includes application to PIN code entry for obtaining specific services through mobile phone, for instance via GSM, or other specific services via Television and/or Internet.

#### CLAIMS

1. A system (10, S) for authenticating a PIN code of a user in an interactive information system in order to run an application (11),

wherein it comprises

- input means (15, 34, 35, 36, 37) for PIN codeëntry,
- security manager means (13, 33) for comparing
  the PIN code of the user upon a request for user
  authentication from the application, with a
  registered PIN code, and giving authorisation to run
  said application if the PIN code of the user matches
  with the registered PIN code, and
- display means (17, 29, 38) for displaying any graphics including a PIN entry field, characterised in that
  - the request for user authentication being provided on the display means via the Pin entry field with the look and feel of said application, the system further comprises emitting means (29, 38) for entering crypted digits in said PIN entry field upon entering the PIN code of the user in the security manager means through said input means,
- and the security manager means (13, 33) are arranged to give authorisation to run the application after full entry of said crypted digits and if the PIN code of the user is identical to the registered PIN code.
- A system according to claim 1 characterised in
   that the application is a television program.

- 3. A system according to claim 1, characterised in that the application is a service provided on mobile Telephone.
- 4. A method for authenticating a PIN code of a user in an interactive information system, in order to run an application,

wherein said information system emits a request for authenticating a user (41),

said user enters a PIN code (43) through input means,

said PIN code of the user is compared (45) with a registered PIN code within security manager means, and authorisation is provided to run said application if the PIN code of the user matches with the registered PIN code,

15 characterised in that

- the request for authenticating being provided with a PIN entry field having the look and feel of the application,
- crypted digits are entered (44) in said PIN entry
   field, upon entering the PIN code by the user in the security manager means,

and authorisation to display the application is only provided (47) after full entry of said crypted digits, and if the PIN code of the user is identical to the registered PIN code as checked by the security manager means.

5. A method according to claim 4, characterised in that, for presenting the request for authentication, the application undertakes the following steps:

- presenting a PIN entry field to the user (41),
- asking the security manager means to enter a PIN Entry Mode (42),
- the input means comprising keys, checking if keys are pressed by the user (43),
  - while keys are pressed, giving feedback in entering said crypted digits in said PIN entry field (44), and,
- if the user is authenticated (45) by said security
   manager means, giving said authorisation (47) to display (48) the application.
- 6. A method according to any of claims 4 and 5, characterised in that, for providing the authorisation to display the application the security manager means undertakes the following steps:
  - at the request of the application entering a PIN entry mode (50),
  - initialising to empty a PIN repertory (51) and, the input means comprising keys, waiting for a key to be pressed by the user (52),
  - upon occurrence of pressing an « ending key », checking if a release occurs (53), checking the entered PIN against the user's PIN (56), and if success authorising the application to run.
- 7. A method according to any of claims 4 to 6, characterised in that the application is a Television program.
  - 8. A method according to any of claims 4 to 6, characterised in that the application is a service provided on a mobile telephone.

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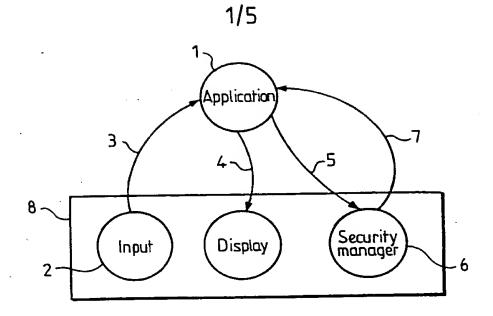


FIG.1 PRIOR ART

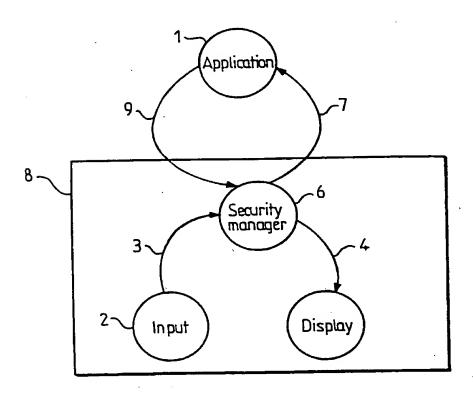


FIG.2 PRIOR ART

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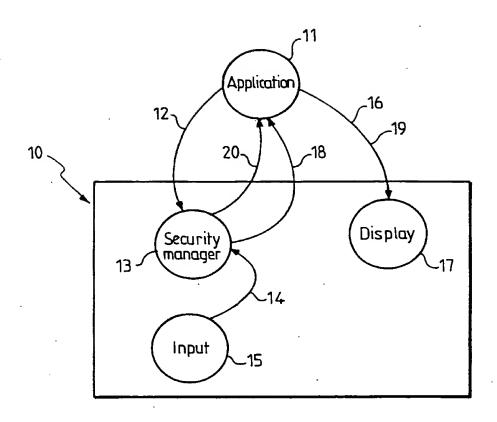
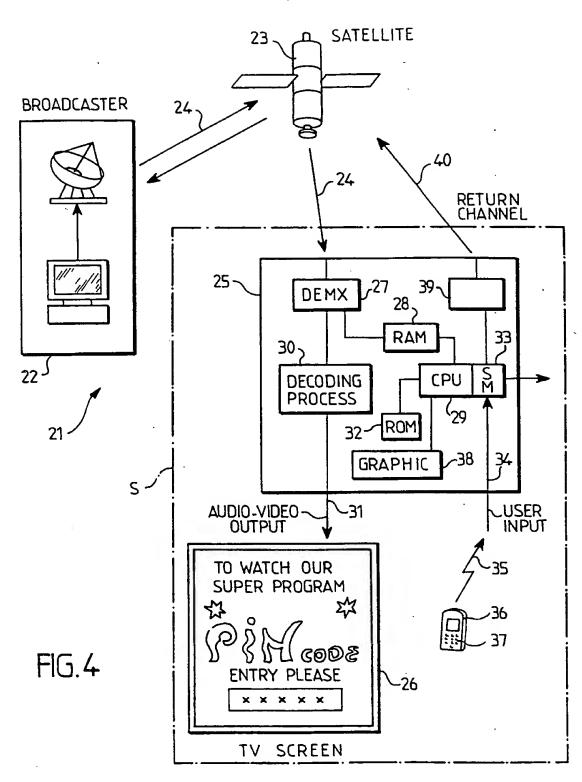


FIG. 3

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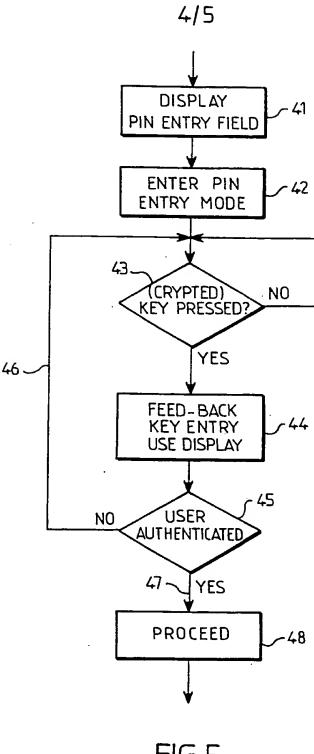
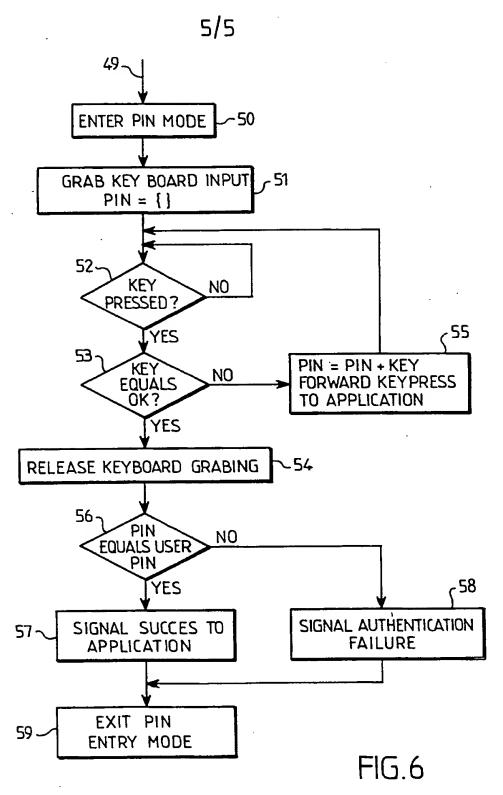


FIG.5

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A. CLASSIFICATION OF SUBJECT MATTER IPC 7 H04N7/16 G07F Ĝ07F7/10 According to International Patent Classification (IPC) or to both national classification and IPC B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) HO4N GO7F HO4L HO4Q GO6F GO7C IPC 7 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practical, search terms used) C. DOCUMENTS CONSIDERED TO BE RELEVANT Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. 1-8 US 5 870 723 A (HOFFMAN NED ET AL) X 9 February 1999 (1999-02-09) column 4, line 28 - line 49 column 10, line 1 - line 7 column 16, line 19 - line 29 US 5 682 325 A (GOODMAN WILLIAM ET AL) 1,2,4,5, Υ 28 October 1997 (1997-10-28) abstract column 15, line 41 -column 16, line 44 1,2,4,5, US 5 267 149 A (ANADA NORIAKI ET AL) Y 30 November 1993 (1993-11-30) figure 3B column 3, line 50 - line 55 column 4, line 34 - line 51 -/--Further documents are listed in the continuation of box C. Patent family members are listed in annex. Special categories of cited documents : "T" later document published after the international filing date or priority date and not in conflict with the application but "A" document defining the general state of the art which is not considered to be of particular refevance cited to understand the principle or theory underlying the earlier document but published on or after the international "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to filing date "I" document which may throw doubts on pnority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) involve an inventive step when the document is taken alone document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such docu-"O" document referring to an oral disclosure, use, exhibition or ments, such combination being obvious to a person skilled in the art. other means document published prior to the international filing date but later than the priority date claimed "&" document member of the same patent family Date of the actual completion of the international search Date of mailing of the international search report 15/02/2000 8 February 2000

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Authorized officer

Lindholm, A-M

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Category '	Citation of document, with indication where appropriate, of the relevant passages	Helevant to claim No.		
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А	WO 97 19555 A (PREVUE INTERNATIONAL INC) 29 May 1997 (1997-05-29) figures 2,5 page 1, line 24 -page 2, line 2 page 2, line 24 - line 30 page 10, line 1 - line 9	1,2,4-7		
Α	EP 0 564 832 A (IBM) 13 October 1993 (1993-10-13) column 6, line 41 - line 55; figure 4	6		
Α	WO 98 00968 A (FCA CORP DOING BUSINESS AS FOR) 8 January 1998 (1998-01-08) page 10, line 14 - line 21	6		
A	US 4 947 429 A (BESTLER CHARLES B ET AL) 7 August 1990 (1990-08-07) abstract column 1, line 54 - line 64 column 3, line 1 - line 22			
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